

**NEW  
BUSINESS  
#2**

# Anastasia Mosquito Control District of St. Johns County

120 EOC Drive, St. Augustine, Florida 32092

PH: (904) 471-3107 • Fax (904) 471-3189 • Web Address: [www.amcdsjc.org](http://www.amcdsjc.org)

## MEMO

DISTRICT DIRECTOR

*Dr. Rui-de Xue*



BOARD OF COMMISSIONERS:

*Jeanne Moeller, Chairperson  
Trish Becker, Vice-Chairperson  
Don Girvan, Secretary/Treasurer  
Gary Howell, Commissioner  
Gina LeBlanc, Commissioner*

TO: Board of Commissioners

FROM: Dr. Rui-De Xue, Director

CC: Charolette M. Hall, Administrative Assistant

DATE: February 3, 2020

RE: FMCA Tallahassee Legislation meeting Report (January 21-22, 2020)

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The FMCA Tallahassee Legislation meeting was held in Tallahassee, FL on January 21 through January 22, 2020.

Commissioner Moeller attended this and will give a report.

**NEW  
BUSINESS**

**#3**

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## MEMO

DISTRICT DIRECTOR

Dr. Rui-de Xue



BOARD OF COMMISSIONERS:

Gary Howell, Chairperson  
Jeanne Moeller, Vice-Chairperson  
Gina LeBlanc, Secretary/Treasurer  
Don Girvan, Commissioner  
Trish Becker, Commissioner

TO: Board of Commissioners

FROM: Dr. Rui-De Xue, Director

CC: Charolette M. Hall, Administrative Assistant

DATE: February 13, 2020

RE: **Approval for attorney and staff to finalize Revised Employee Handbook for approval  
March or April 2020**

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Due to policy changes and procedures and the fact that the last revision of the Employee Handbook was in 2011, staff requested, at the August 7, 2019 Board meeting, that they and our attorney work on updating the Employee Handbook.

After discussion, the consensus of the Board was for staff to continue working on it, after updating the Probation policy, Sick and Annual Leave policy and health insurances and other benefits, and then bring it back to the Board. Those policies have been updated.

The Employee Handbook, being a continual work in process, is constantly updated by our Administrative Assistant, Ms. Charolette M. Hall, with any additions or changes to policies. Also, over the years, procedures and equipment, etc. have changed. Therefore, Ms. Hall has rearranged the policy manual to be more user friendly and then a committee of six (6) staff members reviewed every policy from front to back of the Employee Handbook, and by a consensus on each policy, suggested changes to update all policies. There are several policies that even with our suggestions, need to be redone completely by our attorney, and then of course have him review the entire Employee Handbook.

After all of the committee suggestions and updates were incorporated into the proposed Employee Handbook, it was sent to our attorney on October 29, 2019, requesting his review of the entire Employee Handbook and revision of some major policies (ie; Drug Free Workplace Policy, Whistle Blower Policy, etc. as they are lengthy policies that need condensed and legal issues defined on these policies).

We would like to have the Board approve having the attorney review the proposed Employee Handbook and work with staff on any updates, changes, etc. that he sees necessary. Staff will then bring the Final Revision back to the Board at the March or April 2020 Board meeting for final approval.

**NEW  
BUSINESS**

**#4**

## **<sup>1</sup> DRESS AND APPEARANCE POLICY**

The image of the District is influenced by the appearance of its employees. We are all expected to practice good hygiene and keep a clean, neat professional appearance and to dress in appropriate field or business attire.

These following dress and personal appearance guidelines are meant to enable the employees of the District to dress professionally, but reasonably and responsibly. In all cases regarding what is considered acceptable attire, the final determination rests with management. If the attire does not meet standards considered acceptable or may disrupt the process or good order and discipline of the District, the employee will be requested to go home to change, with time involved unpaid.

### Guidelines for Employees That Are Issued Uniforms:

Uniforms consisting of jeans and a work shirt with insignia are provided to field personnel by the District at no cost to the employee. All field employees are responsible for wearing the appropriate uniform during all working hours. The uniform will be worn in such a manner so as to present a professional appearance and modifications to either the shirt or jeans (such as additional patches, insignia or stitching) may not be made. Uniforms may be worn during incidental stops while traveling to and from the workplace, but not as general attire away from the workplace. The supplying of uniforms to employees is a fringe benefit offered by the District and is subject to fund availability during the budget process. Employees who leave the District must return all uniforms that they have been issued.

### Guidelines for Employees Not Issued Uniforms:

Clothing shall not be distracting or revealing; Pajamas and lingerie are not acceptable attire.

District polo shirts provided to office employees in place of the executive uniform may be worn at the District offices at any time and should be worn on official duties away from the District.

Clothing, piercings and accessories shall not be worn if they display profanity, violence, discriminatory messages, or sexually suggestive phrases, or advertisements, phrases or symbols of alcohol, tobacco or drugs, or create a safety issue within the District.

Shoes must be safe and appropriate. District employees may wear backless shoes, however, bedroom slippers and footwear commonly considered as

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<sup>1</sup> Policy 2010-03; As approved by the Board of Commissioner on Dec. 10, 2009



beachwear are prohibited (For example, beach sandals, flip-flops, or other such beach shoes.)

Men:

- Nice Shirts (Dress, polo, etc. – No T-Shirts, tank tops, etc.)
- Neat Slacks or Jeans worn at the waist. (No holes)
- Shoes & Socks must be worn

Women:

- Dresses (no off the shoulder or low cut in front or back{where bare skin and/or cleavage is obviously seen)
- Neat Slacks or Jeans (No holes)
- Skirts (no shorter than 4 inches above the knee, even if worn with leggings, etc.)
- Blouses & Shirts (no off the shoulder or low cut in back or front (where bare skin and/or cleavage is obviously seen, no spaghetti strap tops as outerwear)
- Capri style Pants will be acceptable if of a professional nature, worn with a professional blouse or shirt.

#### General Guidelines:

Head coverings (including caps, hats, bandannas, and hair curlers) shall not be worn in the District classroom or Boardroom when training or meetings are ongoing.

Hair shall be clean and well groomed. Extreme hairstyles will not be acceptable. Mustaches and Beards will also be clean and well groomed.

Jewelry & Make-Up: No excessive make-up or jewelry will be allowed. (includes multiple piercings of a distracting nature and excessive make-up that is distracting.)

# REPORTS



## Director report (January 2020)

### Program Management:

1. Customer & professional service and service request process: AMCD answered 215 service request due to warm weather in the middle of January. Dr. Xue reviewed 3 manuscripts for Insect, Parasites & Vectors, and Acta Tropica at the editors' requests. AMCD provided PPT about Spartan ATSB products for AMCA committee.
2. Surveillance: Prepared for arbovirus surveillance and CDC traps & attractants for 2020. BG traps collected *Aedes* (935) and *Culex* (251) mosquitoes.
3. Operation control: AMCD MCTs did ULV adulticiding for 20 times for 10,271 acres due to warm weather. Positive larval dips were 223 and treated larvae for 39 times for 150 acres by ground application.
4. Applied research: Spatial repellent project continue. Collaboration projects about keystone virus vector collection and UF/EPI isolated Keystone virus from the mosquitoes we collected and provided. DoD grant (decision make threshold) and CDC collaboration grant preproposals (SIT for WNV & smart cages) with UF have been submitted on time in January. DoD requested for a full proposal. Submitted a manuscript about larviciding to the JAMCA and ATSB paper to CDC for review.
5. Education: One Commissioner, Director, and 4 staff attended the FMCA fly-in class and visited Collier and Lee MCDs. Education Specialist & a Commissioner joined a middle school science project judge. Education Specialist updated intern and horse & EEE prevention flyers. Staff Prepare and edit Annual program report and Dr. Xue worked out the 17<sup>th</sup> workshop draft program agenda.

### Business Management:

1. Serve to the Board of Commissioners: Staff prepared for January 16's Board meeting and education center partial committee meeting with documentations at DPI on Feb 3.
2. Budget and Auditor: W-2 and 1099 forms have been distributed to all employees and related person by Accountant/CFO. Accountant and auditor have started process for FY 18-19 auditoria inspection and report.
3. Insurance: The health, life and dental insurances have been renewed.
4. Contract: Database contract is worked on by staff and attorney. Contracts about education center building have been worked out by the company, staff, and District attorney for Board to approve after the RFP was awarded in January.
5. HR. AMCD received 9 high qualified applications for the molecular entomologist and arbovirologist position and committee interviewed top 6 applicators. AMCD offered the job to Dr. Steven Pepper who is a post doctor at Texas Tech University. AMCD received additional 6 applications (total 32) for the pilot position and schedule the interview in Feb.

### Meeting:

Jan 2. Dr. Xue gave a seminar about recent outbreak of vector-borne diseases at the Institute of Malaria and Training Center, University of Sciences, Techniques, and Technology of Bamako, Mali

Jan 6. 9am Attended SIT teleconferences about CDC grant application. Reviewed a manuscript about *Culex* mosquito behavior for Acta Tropica.

Jan. 7. Prepare Board book memos and documentations.

Jan. 8. Communicated with UF/EPI about Keystone virus survey. 11am. Met Commissioner Mrs. Moeller about agenda, aerial program, and CDC grant proposals.

Jan. 9. 9am. Met commissioner Mrs. Becker about agenda and education center. 11am. Met Commissioner Mr. Girvan about agenda and aerial program.

Jan. 13. 8am. Met Commissioner Mr. Howell about agenda. Went to Ft. Myers for Fly-in class.

Jan. 14. 8am. Visited Collier County MCD's lab and aerial facility. Commissioner Mrs. Moeller, Business Manager Mr. Weaver, A&P. Mechanic & two staff join the visiting and class. Pm. Attended FMCA Fly-in class.

Jan. 15. AM. Visited Lee County MCD's SIT facility.

Jan. 16. 9am. Attended the GLP meeting. Reviewed a manuscript about resistance for the Parasites and Vectors. 3pm. Attended the NACCHP teleconference about mentorship. 5pm. Attended the Board meeting.

Jan. 21. 10am. Met Pilot Mr. Brad Gunn about his service as the aerial committee for interview and training. PM. Attended teleconference with Vector Control Consultant for GLP.

Jan. 22. 8am. Met construction VP about change of order. 8:30am. Attended the UF/EPI's grant update. 9-11:30am. Interviewed Molecular Entomologists (5). 1pm. Attended DoD teleconference about grant application.

Jan. 24. 9am. Met Dr. Phil K. about DACS grant opportunity. 10:30am. Attended UF/Dept. seminar about honey bees.

Jan. 27. 1:30pm. Met Mr. Barry Scott about conflicting. 3:30pm. Met Mr. Jerry Isle about conflicting.

Jan. 28. 9am. Interviewed 1 Molecular Entomologist. Reviewed a manuscript about fungi for Insects.

Jan. 29. Communication with Dr. Steven Pepper about his offer.

Jan. 30. 9am. Attended SIT teleconference. 1pm. Met Dr. Jerry Bond about his sample testing. 2pm. Met Mrs. Heather Ward about Biotech position.

# Treatment Summary January 2020

From Date : 01-01-2020

To Date : 01-31-2020

Zone : All

Material : All

Task : All

Material	Amount	Area Treated	Application Rate	Times
Altosid WSP	123 ea	0.38 acre	322.68 ea / acre	4 times
Aquabac XT	800 fl oz	50 acre	16 fl oz / acre	13 times
Aqualure 20-20 1:5	1577 fl oz	6104.51 acre	0.26 fl oz / acre	9 times
Cocobear	392 fl oz	1.02 acre	384.02 fl oz / acre	7 times
Duet 50%	3040 fl oz	1936.3 acre	1.57 fl oz / acre	8 times
Mosquitomist Two	1472 fl oz	2230.3 acre	0.66 fl oz / acre	3 times
Talstar P	2.04 gal	6.05 acre	0.34 gal / acre	16 times
VectoBac 12AS	1584 fl oz	99 acre	16 fl oz / acre	15 times

# Task Time Summary 2020

From Date : 01-01-2020

To Date : 01-31-2020

Zone : All

Employee Name : All

Task Time Summary			
Task	Total Time	Total Timesheets	Total Time
Administrative	757:53 hrs	140	
Aerial Ground Crew	00:30 hrs	1	
Aerial Maintenance	138:53 hrs	20	
AM Briefing	51:31 hrs	94	
Annual Leave	433:45 hrs	82	
Assist	95:22 hrs	46	
Building & Grounds Work	530:46 hrs	152	
Chicken Program	40:32 hrs	25	
Computer Repair	107:48 hrs	20	
Daily Paperwork	60:37 hrs	116	
Field Experiment	276:53 hrs	72	
Fish Program	15:35 hrs	14	
Fog Mission Serv Req	08:10 hrs	94	
GLP Management	66:30 hrs	26	
Ground Adulticide	59:40 hrs	28	
Ground Larvicide	62:22 hrs	40	
Ground Site Inspection	230:20 hrs	200	
Hand Adulticide	39:28 hrs	71	
Holiday	550:00 hrs	57	
Insectary	114:05 hrs	49	
Inventory	31:45 hrs	10	5093:45 hrs
Lab Experiment	22:45 hrs	10	
Leave Without Pay	78:00 hrs	10	
Mechanics Time	181:17 hrs	20	
Meeting	104:10 hrs	88	
Mosquito Trap BG	64:16 hrs	38	
Mosquito Trap ID	11:45 hrs	10	
Mosquito Trap OV	00:52 hrs	1	
Produce Papers & Programs	347:15 hrs	95	
Project Research	103:50 hrs	28	
Public School Program	08:00 hrs	2	
Resupplying Trucks	19:44 hrs	26	
Sick Leave	83:45 hrs	13	
Sick/Personal Leave	40:00 hrs	5	
Source Reduction (tires)	03:30 hrs	2	
Supervisory	45:10 hrs	14	
Training Classroom	152:30 hrs	42	
Training Field	89:00 hrs	19	
Travel	42:45 hrs	9	
Vehicle Maintenance	22:46 hrs	20	

BG Traps January 2020					
1/1/2020					
To :					
1/31/2020					
Trap Type :					
BG					
Species Name	2020 01				Species Total
	7	14	21	28	
Ae aegypti	0	12	0	10	22
Ae albopictus	1	12	0	17	30
Ae atlanticus	0	0	0	0	0
Ae canadensis	0	0	0	0	0
Ae eggs	0	0	0	0	0
Ae fulvus pallens	0	0	0	0	0
Ae infirmatus	0	869	0	66	935
Ae mitchellae	0	0	0	0	0
Ae signifera	0	0	0	0	0
Ae sollicitans	0	0	0	0	0
Ae taeniorhynchus	0	36	0	3	39
Ae triseriatus	0	0	0	0	0
Ae vexans	0	0	0	29	29
An atropos	0	0	0	0	0
An bradleyi	0	0	0	0	0
An crucians	0	15	0	4	19
An perplexens	0	0	0	0	0
An punctipennis	0	0	0	0	0
An quadrimaculatus	0	0	0	1	1
An walkeri	0	0	0	0	0
Cq perturbans	0	0	0	0	0
Cs inornata	0	0	0	0	0
Cs melanura	0	0	0	4	4
Cx coronator	0	1	0	0	1
Cx eraticus	0	0	0	1	1
Cx nigripalpus	0	34	0	42	76
Cx quinquefasciatus	2	43	0	119	164
Cx restuans	0	0	0	6	6
Cx salinarius	0	19	0	68	87
Cx territans	0	0	0	0	0
Ma dyari	0	0	0	0	0
Ma titillans	0	0	0	0	0
Or signifera	0	0	0	0	0
Ps ciliata	0	0	0	0	0
Ps columbiae	0	0	0	0	0
Ps cyanescens	0	0	0	0	0
Ps ferox	0	4	0	0	4
Ps howardii	0	0	0	0	0
Tx rutilus	0	0	0	0	0
Ur lowii	0	0	0	0	0
Ur sapphirina	0	0	0	0	0
Wy Mitchellii	0	0	0	0	0
<b>Daily Total</b>	<b>3</b>	<b>1045</b>	<b>0</b>	<b>370</b>	<b>1418</b>

Malaria vector
WNV/SLE vector
EEE vector
Dengue, yellow fever, chick-v, Zika

# Anastasia Mosquito Control District of St. Johns County

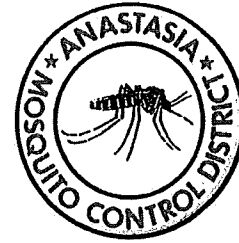
120 EOC Drive, St. Augustine, FL 32092  
Telephone: (904)-471-3107 \* Fax (904) 471-3189 \* Web: [www.amcdsjc.org](http://www.amcdsjc.org)

## BOARD OF COMMISSIONERS

Jeanne Moeller, Chairperson  
Trish Becker, Vice-Chairperson  
Don Girvan, Secretary/Treasurer  
Gary Howell, Commissioner  
Gina LeBlanc, Commissioner

## DISTRICT DIRECTOR

Dr. Rui-De Xue



January 29, 2020

Dr. Steven T. Peper  
1217 N. Bangor Avenue, Unit B  
Lubbock, TX 79416  
[Steve\\_peper83@yahoo.com](mailto:Steve_peper83@yahoo.com)

Dear Dr. Peper,

Based on the District's hiring policy and the interview committee's recommendation, I am pleased to offer you the full time (40 hour per week) Molecular Entomologist/Biologist position with the Anastasia Mosquito Control District of St. Johns County.

The terms of the offer are: 1) the offer is contingent upon the successful completion of a driver's license check, previous employment verification, criminal background check and reference checks. 2) this position reports to Dr. Whitney Qualls, Entomologist/Scientific Manager. 3) the annual salary is \$69,000, paid on a bi-weekly basis, all subject to applicable tax withholdings. 4) this is an Exempt position, meaning you will not be paid an overtime rate. 5) part of the job description (attached) requires for this position to obtain a Public Health Pest Control license within six (6) months of your hire date if you don't already hold that license. It is then required that you maintain the license by obtaining the required number of Continuing Education Credits (CEU)'s for the license. 6) you are eligible for the full benefits package outlined on the benefits summary attached, to be effective upon date of hire. The HCR Exchange notice is also attached.

Your first day of work in this position will be Monday, March 23, 2020. Please report to the District at 120 EOC Drive, Bldg. 100, St. Augustine, FL 32092 to begin your paperwork and training. Your normal schedule will be 6:30 A.M. to 4:30 P.M. Monday through Thursday, from now through April 30<sup>th</sup> and then 6:30 A.M. to 3:00 P.M. Monday through Friday from May 4<sup>th</sup> through October 31<sup>st</sup>, however night time hours, weekend and/or Holiday hours may be required depending on the seasonal and position needs.

Again, we are delighted to have you join us in this full time Molecular Entomologist/Biologist position. However, we recognize that you retain the option, as does the District, of ending your employment with the District at any time, with or without notice and with or without cause, however, the District requests the courtesy of 10 working days written notice, if possible. As such, your employment with the District is "at will" and neither this letter nor any oral or written representations may be considered a contract for any specified period of time.

Please contact me at (904) 471-3107 if you have any questions.

Welcome to the Anastasia Mosquito Control District of St. Johns County. Please let us know if you would like to accept the offer by signing below and returning one signed copy to us at the above address within one week.

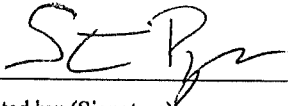
Sincerely,



Dr. Rui-De Xue, Director

Cc: Jeanne Moeller, Chairperson

RDX:cmh



Accepted by: (Signature)

31 January 2020

Date:

Steven T Peper

(Printed Name)



# ATTACHMENTS

# ANASTASIA MOSQUITO CONTROL DISTRICT OF ST. JOHNS COUNTY



# 2019 ANNUAL PROGRAM REPORT



from  
**1949**



Robert E. Bartnett  
1952-1964 AMCD's  
First Director

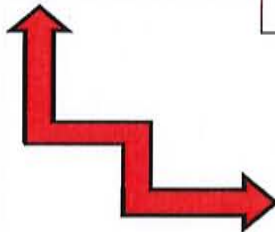
1949 Commissioners:

*(no pictures)*

Mr. Robert W. Hamilton  
(1949 -1950),  
Mr. Charles E. Young  
(1949-1951) and  
Dr. Raymond Cafaro  
(1949-1974)



AMCD's first  
Employee George  
Pitts 1950-1966



to the

present

**2019**



Current Director,  
Dr. Rui-De Xue  
2005 – present  
Hired 4-14-03

Current Commissioners:

*(left to right)*

Mr. Don Girvan (2018-2020),  
Mrs. Jeanne Moeller (2007-2022),  
Mrs. Gina LeBlanc (2017-2020),  
Mr. Gary Howell (2013-2020),  
and Mrs. Trish Becker (2019-2022)



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# PREFACE

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## A MESSAGE FROM THE CHAIRPERSON



In 2019, our District had a lot of accomplishments and we occupied building 500 (green houses and quarantine insectary), 700 (animal house), 800 (multi-purpose building, including pesticide storage, general storage, droplet size lab, and wind tunnel/olfactometer lab), and 900 (helicopter hangar). We decreased the millage rate from 0.220 to 0.210. For the first time, our District used our helicopter to treat more than 700 acres for larviciding. The District approved the RFP for the Education Center building and hired a consultant for the Good Laboratory Practice (GLP) and he conducted training and the pre-inspection. We changed benefits to the 1<sup>st</sup> day of hire and probation to 1 year. We also increased the minimum wage to \$15 per hour. I am happy to have successfully served the Board for the 4<sup>th</sup> year as Chairperson. I am very appreciative to all Board members and staff, and the employees for working together and for their support.

## A MESSAGE FROM THE DIRECTOR

St. Johns County residents have been free of any locally-acquired mosquito-borne diseases for the past 16 years, even though there were two horses that tested positive for WNV & EEE, 54 sentinel chickens tested for WNV, and 8 for EEE. AMCD partially supported the AMCA annual meeting in Orlando in late February, hosted the 91<sup>st</sup> FMCA annual meeting in St. Augustine in the middle of November, and organized a successful 16<sup>th</sup> Arbovirus Surveillance



and Mosquito Control Workshop in late March which attracted 225 participants and created the first international session. The National Association of City and County Health Officers (NACCHO) awarded a grant to AMCD as the vector control mentor to provide training for the Gainesville mosquito control program. AMCD finished all construction and equipped all laboratories and facilities and has become a model of mosquito control organizations to have received many visitors from other mosquito control programs. AMCD collaborated with UF, USDA/CMAVE and received about \$720,000 in CDC funding for the SIT male release against *Aedes aegypti* mosquitoes in downtown St. Augustine, \$30,000 from MosquitoMate for the *Wolbachia*-infected male mosquito release in St. Augustine, and about \$100,000 in funds from other companies or organization for repellent, larvicide, and trap evaluations. These grant funds benefited AMCD's operations program and assisted AMCD in hiring and training 6 visiting scientists and 8 intern students. I am happy to have received the AMCA President Citation Award in Orlando, Florida in late February and Mr. Richard Weaver received the FMCA Merit Award from the FMCA in November. I do appreciate the Board of Commissioners, all employees, and collaborators for their strong support in 2019.



**ANASTASIA MOSQUITO  
CONTROL DISTRICT  
OF ST. JOHNS COUNTY  
BOARD OF COMMISSIONERS**



3

**ANASTASIA MOSQUITO  
CONTROL DISTRICT  
APPOINTED  
OFFICERS**



**Mr. Gary  
Howell  
Seat 5  
2013-2020**



**Mr. Wayne Flowers,  
Attorney, Since: 11-9-10**



**Mrs. Gina  
LeBlanc  
Seat 1  
2017-2020**



**Mrs. Panagiota K.  
"Trish" Becker  
Seat 4  
2019-2022**



**Ms. Julieann Klein, CPA  
Since: 9-11-03**



**Mrs. Jeanne  
Moeller  
Seat 2  
2007-2022**



**Dr. Rui-De Xue, Director  
Hired: 4-14-03  
Director Since: 2005**



**Mr. Don Girvan  
Seat 3  
2018-2020  
Appointed 12-7-18  
through 12-30-20**





# AMCD FULL-TIME EMPLOYEES

## OPERATIONS

	John Freddie Allen, Mechanic Hired: 7/08/02		Steven Kyle Arbor, Mosquito Control Technician Hired: 5/01/17		Dr. Vindhya Aryaprema, FT Contract Biologist Sri Lanka 8/5/19-9-30-20
	Dana Autry, Assistant Supervisor Hired: 8/24/15		Kai Blore, Biological Lab Technician Hired: 4-02-19		Ralph Bruner, A&P Aircraft Mechanic Hired: 9/3/19
	Morgan Duetz, Mosquito Control Tech. " Surveillance Hired: 2/06/17		Dr. Muhammad Farooq, Field Biologist Hired 9-16-19		Cathy Hendricks, Mosquito Control Technician Hired: 7/08/02
	PATRICK KENDRICK, MOSQUITO CONTROL TECHNICIAN Hired: 4/07/03		Dr. Whitney Qualls Entomologist / Scientific Manager Hired: 10/28/19		Barry Scott, Mosquito Control Technician Hired: 3/03/14
	RICKY STOCKLEY, MOSQUITO CONTROL TECHNICIAN Hired: 2/04/13		DAVID STRICKLAND MOSQUITO CONTROL TECHNICIAN Hired: 3/10/97		JEREMY WHOLFORTH, MOSQUITO CONTROL TECHNICIAN Hired: 2/06/17
	Steven Smolero, Biological Technician Hired: 10/02/17		James Wynn, Mechanic Hired: 3/04/96 also: (10/10/89 - 9/22/95)		

## ADMINISTRATION

	Rui-De Xue, Director (2005) Hired: 4-14-03		Marcia Kay Gaines, Operations Manager Hired: 8/07/00		Scott Hanna, Accountant Hired: 7-03-07
	Richard Weaver, Business Manager Hired: 4-14-03		Charlotte M. Hall, Admin. Assistant Hired: 11-05-07		Edward Zeszutko, Education Specialist Hired: 5-13-19



## RETIRED AND/OR RESIGNED 2019

	Christopher Bibb, Biologist Hired: 6/02/14 Resigned: 6/21/19		STEVEN SOLANA, MC TECHNICIAN Hired: 4/24/00 Retired: 1/04/19		Michael Vaughn, Mosquito Control Technician Hired: 8-03-14 Retired: 12-03-19		Dr. Daniel Dixon, Molecular Biologist Hired: 2-10-16 Resigned: 1-03-19		Molly Clark, Education Specialist Hired: 2/06/17 Resigned: 3/28/19
	CARRIE MANGUM, MC TECH. LAB Hired: 9/05/17 Resigned: 3/22/19		Athan Tom Columbus, Field Biologist Hired: 2/6/17 Retired: 7/13/19		Dr. Caroline Elstathlor, Molecular Biologist Hired: 1/28/19 - 12-5-19		Kevin Card, Pilot-PT Hired: 8/26/19 Resigned: 12-30-2019		Peter Paul Leone, Pilot Hired: 10-12-18 Resigned: 8-1-19



**PERSONNEL:** Our volunteer visiting scientists in 2019 were: Dr. Hussein Sanchez-Arroyo, Univ. of Mexico, as a Post Doctorate & worked with AMCD & UF (8-1-18 to 7-31-19); Dr. Vindhya Aryaprema, Sri Lanka (3-18-19 to 8-02-19); Dr. Mohammad A. Miah, Univ. Sains Malaysia and Bangladesh, (6-3-19 to 8-30-19); Dr. Emad Khater, Cairo Egypt (7-15-19 to 9-15-19); & Dr. Shougang Zhang, Nanjing CDC, China (9-30-19 to 12-29-19).

In April 2019, the Board approved temporary full time positions which are grant funded and we hired Dr. Vindhya Aryaprema, Sri Lanka as a FT 14 month Biologist (8-05-19 to 9-30-20) and Ms. Courtney Cunningham as a FT 14 month Biological Technician (8-05-19 to 9-30-20).

The seasonal interns in 2019 were: Mr. Nicholas A. Acevedo (2<sup>nd</sup> yr) (1-7-19 to 10-31-19); Mr. Jacob Dilla (5-8-19 to 8-16-19); Ms. Lea M. Bangonan (6-3-19 to 02-20-2020) Ms. Courtney Cunningham (2<sup>nd</sup> yr) (6-3-19 to 8-02-19); & Ms. Catherine Whippen (1-14-19 to 2-6-19). Seasonal interns that worked for other entities at AMCD were: Ms. Caroline F. Blunck, MosquitoMate (1-7-19 to 6-28-19), & Ms. Mandi A. Pearson, Univ. of Florida (6-3-19 to 8-02-19); Ms. Pearson then worked as an AMCD Intern (8-5-19 to 1-31-20) and Ms. Blunck worked as an AMCD Intern (10-1-19 to 11-27-19).

May 1<sup>st</sup> through October 31, 2019, we had 4 returning seasonal (6 month) inspector/sprayers working at AMCD: Mr. Ray Gaulden (5<sup>th</sup> yr.), Mr. Phillip Vaughn (4<sup>th</sup> yr.), Mr. John Blalock (3<sup>rd</sup> yr.), and Mr. Dazmond Hackney (2<sup>nd</sup> yr.), as well as a maintenance & grounds inspector/sprayer, Mr. Michael D. McNulty (05-13-19 to 10-31-19).

New employees hired in 2019: Dr. Caroline Efstathion, Molecular Biologist (1-28-19); Mr. Kai Blore, Biological Lab Technician (4-2-19); Mr. Edward Zeszutko, Education Specialist (5-13-19); Mr. Kevin Card, Part-Time Pilot (8-26-19); Mr. Ralph Bruner, A & P Aircraft Mechanic (9-3-19); Dr. Muhammad Farooq, Field Biologist (9-16-19); and Dr. Whitney Qualls as Entomologist/Scientific Manager (10-28-19).

Employees that retired and/or resigned were: Dr. Daniel Dixon, Molecular Biologist resigned 1-03-19; Mr. Steven Solana, Mosquito Control Technician, officially retired 1-04-19; Ms. Carlye Tulley, Mosquito Control Lab Technician, resigned 1-22-19; Ms. Molly Clark, Education Specialist officially resigned 4-19-19; Mr. Christopher Bibbs, Biologist, officially resigned 6-21-19; Mr. Athan Tom Columbus officially retired 7-31-19; Mr. Peter Paul Leone, FT Chief Pilot, resigned 8-1-19; Mr. Michael Vaughn, Mosquito Control Technician, resigned 12-03-19; Dr. Caroline Efstathion, Molecular Biologist, resigned 12-5-19; and Part Time Pilot, Mr. Kevin Card resigned 12-30-19.

**RECOGNITIONS AND AWARDS:** Mr. Christopher Bibbs, received the Hollandsworth Prize honorable mention, in the 85<sup>th</sup> AMCD annual meeting's Student Paper Competition on February 28, 2019.

Dr. Rui-De Xue received the Presidential Citation Award on February 28, 2019 at the 85<sup>th</sup> AMCA annual meeting (Feb. 25 - March 1, 2019) in Orlando, Florida.

Dr. Rui-De Xue received a Past Present award at the 102<sup>nd</sup> Florida Entomology Society Meeting in Jupiter Beach, Florida on July 23, 2019.



Mr. Richard Weaver, AMCD Business Manager, received the FMCA Merit Award at the 91<sup>st</sup> FMCA Annual meeting (November 17-20, 2019) in St. Augustine, FL on November 19, 2019.

The following AMCD personnel received an award for their years of service with the District: Mr. Barry Scott, MC Technician, for 5 years; and Mrs. Marcia Kay Gaines for Managements Choice Award for her significant contribution and dedication to the District, including during the hurricane Dorian preparations.

Commissioner Trish Becker and Mr. Wayne Flowers, AMCD Attorney, worked on a Proclamation regarding an Anastasia Mosquito Control District Appreciation Day. The St. Johns County Commissions awarded the Proclamation to AMCD, Tues., Dec. 3, 2019 and then St. Johns County Commissioner, Jeb Smith presented it at the AMCD Board meeting on Thursday, December 12, 2019.





# SEASONAL (6 mo.) EMPLOYEES

# 2019



Raymond Gaulden,  
Inspector  
Sprayer  
5/1/19-  
10/31/19  
(5 yrs.)



Phillip Vaughn,  
Inspector  
Sprayer  
5/1/19-  
10/31/19  
(4 yrs.)



John Blalock,  
Inspector  
Sprayer  
~ Lab  
5/1/19-  
10/31/19  
(3 yrs.)



Dazmond Hackney  
Inspector  
Sprayer  
5/1/19-  
10/31/19  
(2 yrs.)



Michael McNulty,  
Inspector  
Sprayer -  
(Grounds  
& Maint.)  
5/13/19-  
10/31/19  
(3 yrs.)

# INTERNS & VOLUNTEERS



Caroline Blunck,  
Intern  
1/7/19 -  
6/28/19  
and  
10/1/19 -  
12/31/19



Nicholas Acevedo,  
Intern  
8/03/18 -  
12/20/18  
1/7/19 -  
10/31/19



Catherine Whippen  
Intern  
1/14/19 -  
2/6/19



Jacob Dilla,  
Intern  
5/8/19-  
7/31/19



Lea M. Bangonan,  
Intern  
6/03/19 -  
2/20/2020



Mandi A. Pearson,  
UF Intern  
6/03/19 -  
8/30/19  
AMCO  
INTERV  
8-5-19 to  
1-31-2020



Courtney Cunningham  
Intern  
6/3/19 -  
8/2/19



Aye McKinney  
Accounting  
Intern  
6/3/19 -  
8/30/19

# VISITING SCIENTISTS



Dr. Hussein Sanchez Arroyo,  
Visiting Scientist,  
Univ. of Mexico  
8-1-18 to  
7-31-19



Dr. Vindhya Arysprama,  
Visiting Scientist,  
Sri Lanka  
03/18/19-  
08-02-19



Dr. Shougang Zhang  
Visiting Scientist  
Nanling CDC, China  
10/01/19-  
12-31-19



Mr. Clay Huddleston,  
Voluntary  
Visiting  
Scientist,  
Mosquito-  
Mate  
03/04/19-  
09-30-19



Dr. Mohammad Miah,  
Visiting  
Scientist,  
Bangladesh  
6-13-19 to  
8-30-19



Dr. Emsad Rhtar,  
Visiting  
Scientist,  
Ain Shams  
Univ., Cairo,  
Egypt  
7-15-19 to  
9-15-19

# ADJUNCT PROFESSORS



Dr. Gunter Muller,  
Adjunct  
Senior  
Vector  
Ecologist  
October  
2018



Dr. Michael Turell,  
Adjunct  
Senior  
Arbo-  
virologist,  
October  
2018

# COMMITTEE MEMBERS 2019

7

## SAFETY COMMITTEE:

*Business Manager (Safety Coordinator):*

Mr. Richard Weaver, (Chair)

*Operations Mgr.:* Mrs. Marcia Kay Gaines

*Asst. Supervisor:* Mrs. Dena Autry

*Pilot or Mechanic:* Mr. Ralph Bruner

*Biological Technician:* Mr. Steven Smoleroff

*Surveillance Technician:* Mr. Morgan Duett

*MC Technician:* Mr. Ricky Stockley;

*Mechanic:* Mr. John "Freddie" Allen,

## APPLIED RESEARCH COMMITTEE:

*Commissioner:* Mrs. Jeanne Moeller  
(Chair)

*Entomologist/Scientific Manager:*

Dr. Whitney Qualls

*Business Manager:* Mr. Richard Weaver

*Field Biologist:* Dr. Muhammad Farooq

*Molecular Entomologist:* Dr. Caroline  
Efstathion

*Assistant Supervisor:* Mrs. Dena Autry

*Biological Technician:* Mr. Kai Blore

*Biological Technician:* Mr. Steven Smoloeroff

## EDUCATION COMMITTEE:

*Commissioner:* Mrs. Trish Becker (Chair)

*Education Specialist:* Mr. Edward Zeszutko

*Molecular Entomologist:* Dr. Caroline  
Efstathion

*Operations Mgr.:* Mrs. Marcia Kay Gaines

*Assistant Supervisor:* Mrs. Dena Autry

*Biological Technician:* Mr. Steven Smoleroff

*Entomologist/Scientific Mgr.:*

Dr. Whitney Qualls

## FINANCIAL/AUDIT COMMITTEE:

*Commissioner:* Mr. Don Girvan (Chair)

*Director:* Dr. Rui-De Xue

*Accountant:* Mr. Scott Hanna

*Business Manager:* Mr. Richard Weaver

*Admin. Assistant:* Ms. Charolette M. Hall

*Operations Mgr.:* Mrs. Marcia Kay Gaines

*Pilots:* Mr. Paul Leone (FT) and

Mr. Kevin Card (PT)

## PLANNING COMMITTEE:

*Commissioner:* Mrs. Gina LeBlanc, (Chair)

*Director:* Dr. Rui-De Xue

*Field Biologist:* Dr. Muhammad Farooq

*Operations Mgr.:* Mrs. Marcia Kay Gaines

*Business Manager:* Mr. Richard Weaver

*Assistant Supervisor:* Mrs. Dena Autry

*Biological Technician:* Mr. Kai Blore

*Entomologist/Scientific Mgr.:*

Dr. Whitney Qualls

## EMERGENCY RESPONSE COMMITTEE:

*Operations Mgr.:* Mrs. Marcia Kay Gaines  
(Chair)

*Field Biologist:* Dr. Muhammad Farooq

*Business Manager:* Mr. Richard Weaver,

*Entomologist/Scientific Mgr.:*

Dr. Whitney Qualls

*Admin. Assistant:* Ms. Charolette M. Hall

*Education Specialist:* Mr. Edward  
Zeszutko

## OPERATIONAL COMMITTEE: GROUND/AERIAL:

*Commissioner:* Mr. Gary Howell (Chair)

*Director:* Dr. Rui-De Xue

*Field Biologist:* Dr. Muhammad Farooq

*Operations Mgr.:* Mrs. Marcia Kay Gaines,

*Business Manager:* Mr. Richard Weaver

*Assistant Supervisor:* Mrs. Dena Autry

*Pilots:* Mr. Paul Leone (FT), and

Mr. Kevin Card (PT)

*Molecular Entomologist:* Dr. Caroline  
Efstathion



## AMCD MISSION, VALUES, VISION, AND PROGRAMS

**OUR MISSION:** To protect all people from the nuisance of mosquitoes and mosquito-borne diseases in St. Johns County, Florida.

**OUR VALUES:** Service Driven, Scientific Based, Professional, Justified, Environmentally-friendly, Collaborative, Compassionate, Accountable, and Sustainable Excellence.

**OUR VISION:** AMCD of St. Johns County will be among the leading Districts for mosquito control and the people in St. Johns County will be among the healthiest in the nation – a well served community, enjoyed by all and supported by all partners.

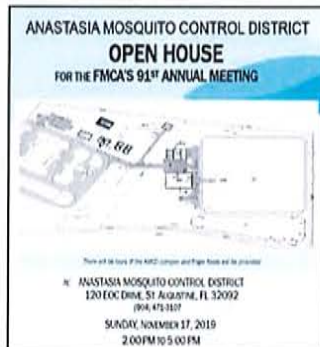
**OUR PROGRAMS:** Customer Service, Operations (including Surveillance and Control), Education, and Applied Research.



AMCD staff are all located in the growing Base Station Complex at 120 EOC Dr., St. Augustine, FL. Harrell Construction Co., Inc. completed construction of the 8 acre south parcel and research property on October 30, 2019, which will increase efficiency at AMCD.

AMCD held an OPEN HOUSE & 70 Year Anniversary Celebration on Thursday, June 27, 2019 from 4-7 PM.

All St. Johns County residents, as well as County and City government Boards, State Representatives and Senators were invited to the event. We had a great turnout with approximately 121 people attending, as well as AMCD personnel.



AMCD also hosted an Open House for the FMCA participants on Sunday, November 17, 2019 here at the AMCD complex. AMCD also hosted the Commissioner's Day for the 91st Annual FMCA Meeting on Tuesday, November 19, 2019, with Commissioner Jeanne Moeller as the moderator of the Commissioner Session.



As we have done since 1949, AMCD continued providing many services to the citizens of St. Johns County. Many things in 2019 included, but was not limited to: conducting inspections; mosquito control; working with and conducting public education and assistance for local organizations, schools, home-owners associations, and the community in general – to help control the populations of mosquitoes; continual surveillance to help reduce the mosquito population and to reduce the chance of human virus association and to protect the environment; conducting larviciding and adulticiding especially during the mosquito season from March through November; increased conducting applied research to test ideas and products to reduce the mosquito population; and providing employee training to keep up with modern equipment and methods to help in the control of mosquitoes and efficient operation.



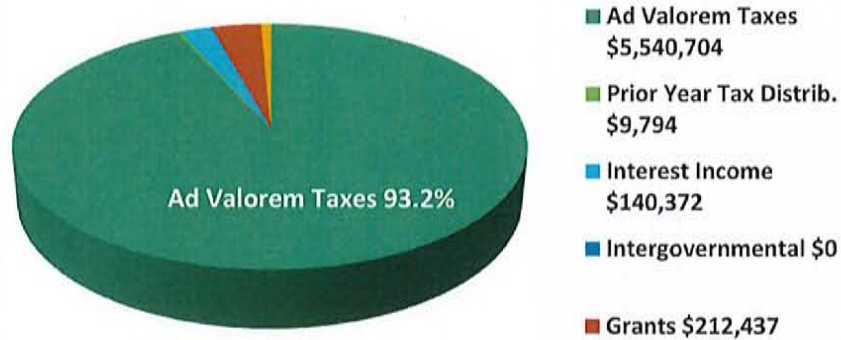


**BUDGET**

FY 18/19 District Revenues  
Fiscal Year October 1, 2018 -September 30, 2019

FINANCIAL SUMMARY

Total Revenues \$5,947,057



Ad Valorem (real property) Current Year Taxes, the primary source of revenue, \$5,540,704 comprised of, approximately, 93.2% of the total Revenues, \$5,947,057

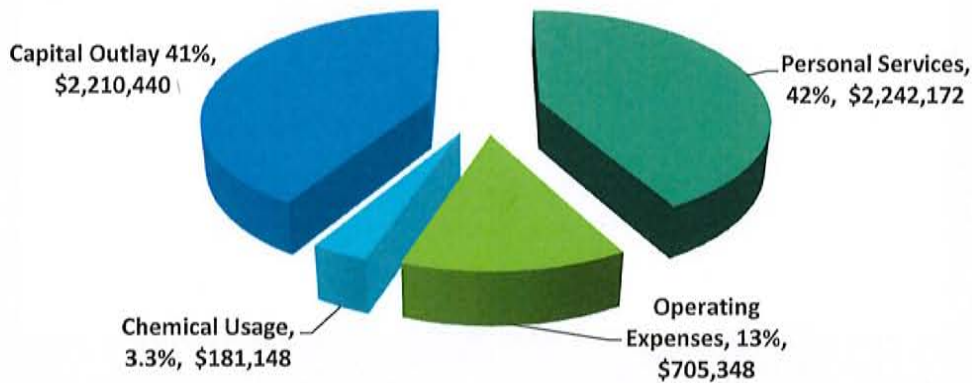
Grant Revenues, from Applied Research, Totaling \$212,437, shows continued growth.

Interest Income- Return on Investment, SBA Fund, non-current Operating Funds, yielded \$140,372.

Other Revenues, comprised of \$7,152 Workshops in house, \$12,547 Surplus Sales, \$17,973 FEMA Hurricane Irma, State Portion, \$6,079 Dorm Rents.

The District's millage rate for the General Operating Budget was 0.2200 for the year.

Total Expenditures \$5,339,108



Expenditures for the year were comparatively less than Revenues. The majority were attributed to Personal Services, 42%, and Capital Outlay, 41%, in which \$2,002,887 comprised of completing the District Facility Expansion Project.

**BOARD BUSINESS:** AMCD staff provided many documents to Board members and the attorney for Board and Committee meetings in 2019 and supported 12 Board meetings, including the annual First and Final Public Hearings in September for the fiscal year budget and millage.

**INVENTORY:** The monthly tire inventory and chemical inventory were done regularly. Two vehicles were surplus on the FY2018/2019 Surplus inventory noted at the January 10, 2019 Board meeting, as well as one ATV and two utility trailers, along with various equipment and other items; and the annual physical inventory was approved October 10, 2019.

**CONTRACTS:** After approval from the Board, many annual contracts were sent out for bid, RFP, or by utilizing the state contracts, to assure the District was obtaining the best services at the best possible prices. Some of these included, but were not limited to, the Auditor Contract in May 2019 (continually from 2003) with Julieann Klein from Lombardo, Spradley & Klein; with MosquitoMate for a contract modification January 10, 2019; The Board also approved; the NACCHO Contract Sub-award Agreement March 14, 2019, the Cintas Uniform contract was approved at the September 12, 2019 Board meeting, Collaboration Grant Applications (CDC for SIT) and (DACs for Keystone Virus Survey) on March 14, 2019, 2 Grant funded 14 month term positions (Biologist and Biological Technician), April 11, 2019; Independent contractor agreements for aircraft mechanics on May 9, 2019, prior to hiring an AMCD mechanic in September 2019, Collaboration with DOD May 9, 2019, Arthropod Management Plan renewal for Anastasia State Park and St. Johns River Water Management Plan renewal on June 20, 2019, At the September 12, 2019 Board meeting, it was also approved for Proposal for GLP Consulting to certify AMCD Lab and facilities; Resolutions 2019-01 for the millage rate (0.2100) and 2019-02 for the Budget for FY 19/20 on September 26, 2019 at the Final Public Hearing; as well as the MOU renewal between FDACS and AMCD at the October 10, 2019 Board meeting. December 12, 2019 the Board approved the GLP Proposal for FY 19/20 and the AMCD and NECE CRADA Collaboration Non-Funded Agreement.

**RFPs & BIDS:** The Board approved an RFP for the Site Plan, Permits, and Design for the Disease Vector Education Center Building at the October 10, 2019 Board meeting, and the RFP was awarded to Harrell Construction Co., Inc. at the December 12, 2019 Board meeting. The Board also approved a Bid award to Arrow Aviation for the Main Rotor Hub Overhaul Bid at the December 12, 2019 Board meeting.

**INSURANCE:** The Board renewed Hull and Liability Insurance renewal July 11, 2019, as well as the annual renewals of the tank guard liability insurance, Fleet Liability and Workers Compensation Ins. at the September 12, 2019 Board meeting, and the dental, life, and health, insurances at the December 12, 2019 Board meeting.

**POLICIES:** At the July 11, 2019 Board meeting, the revised Pay Plan Policy was approved which determined that all new positions begin at a minimum wage of \$15.00 per hour or higher, which began October 1, 2019. Then at the October 10, 2019 Board meeting, the Board approved policy revisions for the Probation period to change from 6 months to 1 year (to begin January 1, 2020) and licensed interns to receive holiday pay and accrue annual leave, and leave computations to change from a calendar year to a fiscal year, which coincides with everything else that AMCD does, all on a fiscal year. The Board also approved, in October, giving health insurance benefits and leave to all newly hired full time employees from date of hire (also beginning January 1, 2020). The amended Administrative Leave Policy revision was approved at the December 12, 2019 Board meeting. Staff also worked on the newest revision of the Commissioner's Handbook with updated information, rearranged to have a policy section, information section, attachment section, and job description section, which will be presented for approval January 2020. Staff also continued updating the District's Policy Manual and Employee Handbook in 2019 with a complete restructuring, and updates with AMCDs conducting business with the new technologies and this will be presented for approval in 2020.



**AMCD WEBSITE:**

AMCD's web site: [www.amcdsjc.org](http://www.amcdsjc.org) is an important tool for providing information to the public, other mosquito control districts, and staff. The site contains important information including: public notices, meeting dates, mosquito-borne disease advisories, training opportunities, education, and employment opportunities. One of the most important links on the AMCD web site is the service request button. At this link, St. Johns County citizens can enter requests for service. This service request is linked to the District's database, Geomosquito, and immediately notifies the AMCD technicians in the field that a request for service has been requested on their route. This page on the web site will also allow customers to access and review the status of a service request and see if there is any adulticide (fogging) scheduled in their area.

AMCD also keeps the public engaged using social media and has a presence on Facebook and Twitter. The Facebook site is very popular with a current following of approximately 1,260 friends. AMCD has also developed a free app to enter service requests, to check for adulticiding (fogging), and the ability to get important notifications from the District. This free app is available for iPhone and Android phone users.

AMCD staff frequently updated our website in 2019. In 2020 AMCD is planning to roll out a complete new website that will be more user friendly and contain more information. The new site will still have important links for service requests and adulticiding (fogging) information.

Staff also assisted the public by distributing *Gambusia*, the mosquito larvae eating fish.

AMCD responded to 1,540 service requests in 2019. The average response time for a service request was 1.6 days. Service requests were received into the District office via phone, email, website, and phone app with more than 75% of service requests coming in through the phone app and web interface.

AMCD held an Open House on June 27, 2019 which was open to all the citizens of St. Johns County. Many were invited, including the Bee Keepers Association, the Master Gardeners, as well as, the citizens of St. Johns County who were interested in what we do and who we are. AMCD staff conducted many detailed tours of the newly finished research facility to members of the public, local and State officials, members of the education system and other government agency's especially other mosquito control districts.

AMCD continued to provide service and to educate St. Johns County residents on many things such as, adult mosquitoes, larvae, adulticiding and larviciding. The AMCD staff also dispensed valuable information pertaining to the identification of mosquitoes, pesticide safety and other insects, mosquito prevention and pesticide applications, personal protection methods, as well as commercial mosquito traps, repellents and insecticides, assisting residents with concerns about no treatment areas, including bee-keepers properties or personal conditions that warrant non treatment.

AMCD strictly adheres to the Florida Statutes, Chapter 388 and 5E-13 of the Florida Administrative Code. The District also follows all Florida Department of Agriculture and Consumer Services and Environmental Protection Agency rules. Labels and Safety Data Sheet instructions are closely followed, as well as, the District's own policies and procedures. AMCD is committed to public safety, while providing the important public service of larviciding and adulticiding in order to reduce the spread of vector disease and nuisance mosquitoes.

AMCD works in cooperation with many local, state, federal, national and even international agencies, as well as, private and commercial organizations and members of the medical community, in the fields of biology and control of mosquitoes and mosquito-borne diseases. Those listed below briefly describe the work associations with AMCD in 2019 in prevention and control of vector-borne diseases in Florida.

INTERNATIONAL COOPERATION AND ACTIVITIES:

Continue the collaboration with Dr. Gunter Muller, the University of Science, Techniques, and Technology of Bamako, Mali on Attractive Toxic Sugar Baits (ATSB) against vector mosquitoes.

Continue the collaboration with Dr. Tong-Yan Zhao, Beijing Institute of Microbiology and Epidemiology & Entomological Society of China to have organized the 6<sup>th</sup> International Forum for surveillance and control of mosquitoes and vector-borne diseases, Xiamen, China, May 26-30, 2019.

Collaboration with the Asian Society of Vector Ecology and Mosquito Control and Taiwan Environmental Pest Control Association to have organized Environmental Agents and Vector Management International Workshop, Taipei, Taiwan, May 31, 2019.

AMCD hosted international visitors: Dr. Emad Khater, Egypt for 2 months, Dr. Shougang Zhang, Nanjing City CDC for 3 months, Dr. Mohammad Miah, Bangladeshi for 3 months, Dr. Vindya Aryprema, Sri Lanka for 5 months, Dr. Hussein Sanchez-Arroyo, Mexico for 7 months, Dr. Hongliang Chu, Nanjing, China for a short visit, Dr. Gunter Muller, Dr. Edita Revay, and Dr. Mohamed M. Traore, Bamako, Mali for a couple of weeks in October, 2019.

Continued Collaboration with Jeddah City's Department of Environments, Saudi Arabia for dengue vector control consulting in early November 2019.

Dr. Xue attended the WHO & Wageningen University's International Conference on innovative strategies for vector control progress in the global vector control response, Wageningen, Netherlands, June 11-13, 2019.

AMCD began collaboration with IMAAC/COST (Europe Collaboration in Science and Technology) on nanotechnology & textile with natural repellents against vector mosquitoes. Dr. Xue was invited to give a presentation on standardization for repellent testing at the work group workshop, Malta, middle of December, 2019.

Commissioners' Gary Howell & Jeanne Moeller, along with Dr. Xue, attended the SOVE annual meeting in Puerto Rico in late September 2019.

Dr. Xue continues to serve the World Mosquito Control Association as Executive Director and joined the Board meeting in Puerto Rico in late September 2019.

NATIONAL AND FEDERAL AGENCIES & ASSOCIATIONS:

Continued collaboration with USDA/CMAVE to organize the annual workshop and SIT for control of *Aedes aegypti* and other studies.

Continued collaboration with NECE, Jacksonville, FL to evaluate ULV spray systems and new formulations of insecticides.

AMCD is a sustaining member of the AMCA and an AMCA/EPA PESP member. Dr. Rui-De Xue co-organized the *Aedes* mosquito management symposium and was the local committee Co-Chair for the AMCA annual meeting, Orlando, in late Feb, 2019. Also, AMCD sent 4 volunteers to assist the AMCA annual meeting. Dr. Xue and Commissioner Jeanne Moeller attended the AMCA's DC Legislation meeting in May 2019.

AMCD received a grant fund from the NACCHO as a mentor to provide training for the Gainesville Mosquito Control program from February to July, 2019. Dr. Xue gave a presentation on creating mosquito control programs at the NACCHO's Vector Summit in Pittsburg, PA in the middle of April 2019. Also AMCD hosted two visitors from NACCHO for program evaluation in June 2019.

Dr. Xue continues to serve the SOVE Board as the Regional Director.

Dr. Xue reviewed numerous numbers of manuscripts for the ESA's Journal, AMCA's JAMCA, SOVE's JVE, Acta Tropic, PLoS one, Parasite & Vectors, Insects, and several other journals at their editors' requests.

STATE ASSOCIATIONS, AGENCIES AND SERVICES:

The FMCA: AMCD hosted the 91<sup>st</sup> annual meeting in St. Augustine, FL, November 17-20, 2019. Dr. Xue served on the Nomination, Research, and Exchange Committees and as editor of the JFMCA, collaborated with 3 assistant editors to edit and publish the JFMCA vol. 66, 2019. Mr. Richard Weaver served on the Financial Committee, and Commissioner Jeanne Moeller served on the Legislation Committee. AMCD staff gave 13 presentations at the annual meeting.

The FES: Dr. Xue, as the past President, served the Florida Entomology Society (FES) and received the Past President Award in Jupiter Beach in late July 2019. AMCD staff gave 2 presentations.

DACS: AMCD renewed the contract with DACS and hosted the FCCMC meeting in February. Dr. Xue continues to serve the FCCMC research sub-committee to review 26 grant applications.

DOH: AMCD attended the annual collaboration meeting of the DOH and AMCD in the middle of June. Both agencies collaborated to release news for a mosquito-borne illness advisory after three horses and many sentinel chickens tested positive for EEE and WNV.

DEP: AMCD collaborated with state parks and environmental education centers for surveillance and management of salt marsh mosquitoes. During the hurricane, AMCD hosted DEP and all their vehicles and boats on the AMCD property in early September 2019.

UNIVERSITIES

AMCD cooperated with: the University of Florida, Dr. Phil Kaufman, to train a Ph.D. student who graduated in August, 2019, Dr. Dan Hahn for the SIT grant, Dr. R. Dinglasan for the CDC SECEVD for intern training, and Dr. Phil Koehler for non-target impacts. AMCD also collaborated with Dr. G. Morris, EPI for the Keystone virus survey, and faculty at the FMEL for arbovirus and mosquito investigation in Northeastern Florida.

AMCD had an MOU in collaboration with UNF to train their summer intern students in the field of public health and the MOU has been renewed for 3 more years.

University of Miami: Dr. Xue, as a voluntary professor for the school of medicine, continues to cooperate with Dr. John Beier for ATSB and biology and control of mosquitoes.

University of Kentucky: AMCD cooperated with Dr. Stephen Dobson on the Wolbachia-infected male mosquito release against Aedes mosquitoes in St. Augustine.

OTHER DISTRICTS AND COMPANIES

East Flagler Mosquito Control District: Both Districts collaborated with their aerial programs and the East Flagler Mosquito Control District's pilot assisted AMCD's interview of an A&P aircraft mechanic and the aerial program from September 20<sup>th</sup> through December, 2019<sup>th</sup>.

Volusia County Mosquito Control District: Volusia Mosquito Control District's mechanic assisted AMCD with their helicopter and AMCD's pilot assisted the Volusia Mosquito Control District to interview a pilot.

Gainesville Mosquito Control: AMCD provide training to the Gainesville Mosquito Control staff.

Union County Mosquito Control: AMCD assisted Union County to create a mosquito control program and to provide training.

AMCD hosted and gave tours to Beach Mosquito Control District, Orange County Mosquito Control District, Brevard County Mosquito Control District, and other Districts programs about AMCD's new complex and blue print.

OTHER COMPANIES

MGK: Collaborated for resistance and Metofluthrin.

DNW: Collaborated for larvicide evaluation.

ThermCell: Collaborated for mosquito repellent against ticks.

MosquitoMate: Collaborated for the Wolbachia-infected male mosquito release.

Spartan Mosquito Eradicator: Collaborated for the evaluation of the ATSB station.

Dyna Trap: Collaborated on trap evaluations.

Light Farmer: Collaborated on spatial repellent devices.



MOSQUITO-BORNE DISEASES:

AMCD continuously cooperates with the Florida Department of Health to monitor imported mosquito-borne diseases through local health providers.

AMCD monitored West Nile Virus (WNV), Eastern Equine Encephalitis Virus (EEE), Saint Louis Encephalitis Virus (SLE), Highland James Virus (HJV) and California Group Virus, using 10 sentinel chicken sites around St. Johns County. WNV was also monitored using the Rapid Analyze Measurement Platform (RAMP), a colorimetric method for virus detection using mosquito pools. AMCD personnel bled chickens every Monday, from April 8<sup>th</sup> to November 29<sup>th</sup> and sent the blood samples to DOH's Arbovirus Laboratory in Tampa for testing.

In 2019, a total of 62 sentinel chickens tested positive for arboviruses, 8 for EEE and 54 for WNV.

AMCD also responded to a number of suspected cases of Chikungunya, Dengue, Malaria and Zika Viruses through surveillance and treatment of the area where the cases originated. In 2019, there was one (1) travel related suspected case of Dengue in St. Johns County. There were no other travel related cases this year. There were no locally acquired human cases of mosquito-borne diseases in St. Johns County in 2019.

There was however, one (1) confirmed horse that tested positive for EEE and one (1) horse confirmed positive with both WNV and EEE in 2019.

MOSQUITO POPULATION:

The adult mosquito population was monitored by 41 CDC light traps baited with Octenol from April to November, 2019 and a total of 13,263 mosquitoes (29 species) were collected. Twelve (12) BG traps, baited with BG Lure and CO<sub>2</sub>, were used for *Aedes albopictus* and *Aedes aegypti* for a total of 17,788 mosquitoes collected from January to December, 2019. A total of 31,051 mosquitoes were trapped by both methods.



Larvae surveys were conducted on a daily basis by dipping flooded areas as needed. A total of 27,410 dips were conducted and 2,542 dips were positive with larvae.

ENVIRONMENTAL PARAMETERS:

Rainfalls were monitored by 12 rain gauges once a week.





ADULTICIDES AND ADULTICIDING:

Mosquito Control Technicians and Inspector/Sprayers continued to use Aqualure 20-20 (Permethrin) and Mosquitomist Two for ground ULV spraying and treated 148 times on a total of 97,087.10 acres for adult mosquito control. DUET was used for hand thermal fogging for service requests and other areas 111 times on a total of 6,684.10 acres. Talstar P was used for barrier treatments in parks, special areas and for service requests 297 times for a total of 99.8 acres for adult mosquito control.

Most of this was conducted for mosquito populations and control of the Zika vector.



Left: Backpack Spraying



Right: Aerial View Truck Mounted Thermal Fogging



Left: Truck Thermal Fogging

LARVICIDES AND LARVICIDING:

In 2019, the District primarily used Bti to kill mosquito larvae, as well as methoprene products in areas where BTI was not applicable.

MC Technicians and Inspector/ sprayers treated 1,037 times on a total of 7,329.3 acres for larval control.



**Larvicides and Adulticides Used in 2019**

Larvicides	AMOUNT USED		AREA TREATED		TIMES APPLIED
Altosid WSP Ground	12,697	ea.	39.4	acres	148
Altosid XR Ground	412	ea.	0.9	acres	40
Altosid XRG Ground	1,680	lbs.	280.0	acres	31
Altosid XRG Air	10,080		1,008.0	acres	20
Aquabac XT Ground	39,400	fl.oz.	4,898.0	acres	520
Bti Briquets Ground	669	ea.	1.5	acres	40
Cocobear Ground	4,302	fl.oz.	11.2	acres	122
Natular DT Ground	149	fl.oz.	0.0	acres	18
Sustain MBG Ground	4,202	lbs.	560.3	acres	58
Sustain MBG Air	960	lbs.	96.0	acres	4
VectoBac 12AS Ground	3,920	fl. oz.	434.0	acres	36
Adulticides	AMOUNT USED		AREA TREATED		TIMES APPLIED
Aqualure 20-20 1:5 Ground	14,083.67	fl.oz.	54,517.4	acres	93
Dibrom Air	128	fl.oz.	231.3	acres	1
Duet 50% Ground	10,494	fl.oz.	6,684.1	acres	111
Mosquitomist Two Ground	28,096	fl.oz.	42,569.7	acres	55
Talstar P Barrier	33.64	gal.	99.8	acres	297

SOURCE REDUCTION & BIOLOGICAL CONTROL:



There were 200 used tires that were collected & removed throughout the year by our AMCD staff & personnel, for source reduction. Containers in and

around residential yards were emptied numerous times when AMCD staff and personnel performed their inspections.

AMCD provided the public with 67 mosquito larvae eating fish named: (Gambusia) for use in retention ponds and ditches in four (4) locations in 2019.



### SURVEILLANCE OF IMPORTANT ARBOVIRUSES IN NORTHEAST FLORIDA:

AMCD collaborated with the University of Florida and received two Florida Department of Agriculture and Consumer Services (FDACS) grants. The first FDACS grant was to investigate the prevalence of the Keystone virus (KEYV) in mosquitoes collected in St. John's County. Keystone virus (KEYV), was first isolated in 1964 from mosquitoes in Keystone, Florida. KEYV is considered a forgotten virus, and no recent data is available from the state of Florida on mosquito infection rates or other vector competence such as *Aedes infirmatus* or *Aedes albopictus* for disease transmission. AMCD, in collaboration with the UF/ Emerging Pathogens Institute, started the project in June targeting *Ae. atlanticus*, *Ae. infirmatus* and *Ae. albopictus*. To date, approximately 15% of *Ae. atlanticus* pools tested positive for KEYV at three locations within the county. This project will continue until July 2020.

The second FDACS project is a collaboration of the UF/Florida Medical Entomology Laboratory, AMCD, the City of Jacksonville Mosquito Control, and Volusia County Mosquito Control. The goal is to better understand factors influencing West Nile virus (WNV) and Eastern Equine Encephalitis virus (EEEV). To lower future virus outbreak risks, targeted vector control is needed based upon a robust understanding of ecological factors contributing to the virus. This data, combined with georeferenced interactions between vector and host species and environmental variables, can be used to produce predictive models of WNV and EEEV transmission potential and identify areas to target additional mosquito control activities. This project is underway and will continue until July 2020.





## NOVEL CONTROL STRATEGIES FOR IMPORTANT VECTORS :

Release of irradiated male *Aedes aegypti* mosquitoes, sterile insect technique (SIT), into the target environment is one such species specific control option. Irradiation results in the male mosquitoes becoming reproductively sterile. The released SIT male mosquitoes mate with the wild females, thus resulting in unfertilized eggs reducing the population density. An operational pilot study was done to evaluate the effects of mass release of SIT males on the St. Augustine strain of *Ae. aegypti* in collaboration with USDA/CMAVE and UF. Baseline data collections on wild *Ae. aegypti* populations at the treatment site and control site were carried out from June to October 2019. Preliminary releases of irradiated marked (pigmented) males started in late October to determine their dispersal within the target site, imposed effects on population densities and induced sterility in the field in comparison to those at the control site. Seven weekly SIT were conducted. Monitoring in both sites was carried out with BG Sentinel traps and 24 ovi-cups. A suppression field trial will begin in March 2020. This is funded by CDC/DOH.

Release of *Wolbachia*-infected male *Aedes aegypti* and *Ae. albopictus* to control natural population of *Aedes* mosquitoes was conducted in St. Augustine South. This is a collaboration project with MosquitoMate. The preliminary results showed that more than 70% natural population of *Ae. albopictus* had been reduced after multiple releases in the treated area, compared with the untreated area. This project is funded by MosquitoMate.



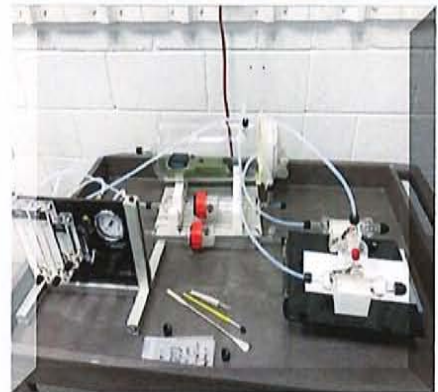


## INSECTICIDES AND REPELLENT EVALUATIONS:

Ticks are considered as the second most dangerous vector of diseases, some of which are quite lethal. Currently contact mosquito repellents are used for protection against ticks with no information on the use of spatial repellents. A study was initiated to investigate the effectiveness of a spatial mosquito repellent (Portable mosquito repeller, Model MR300, Thermacell Repellents, Inc., Bedford, MA) on repelling ticks. The study was conducted in a modular wind tunnel (MWT) using as olfactometer and in a mini true choice olfactometer. In the wind tunnel, male and female adults were tested separately but there was no difference in their behavior. Thus, male and female adults were tested together in the true-choice olfactometer. Also, the nymphs were tested in the true-choice olfactometer. The results indicated that adults were partially repelled in the wind tunnel. In the true-choice olfactometer, adults were repelled significantly by thermacell but nymphs were not. The study was funded by Termacell Repellents Inc.

Different spatial repellent devices against adult mosquitoes were evaluated in outdoor screened enclosures. This is a collaboration project and funded by Light Farmer.

Visiting scientists Dr. Muhammad Miah and Dr. Shougang Zhang conducted studies to evaluate copper sulfate as a potential new larvicide. Copper sulfate is commonly used to clean sources of standing water, such as swimming pools and ponds, of algae and bacteria. To evaluate its effects, Dr. Miah tested different concentrations of a copper sulfate solution (SAFI) ranging from 5–100ppm against 3 different mosquito species: *Aedes aegypti*, *Culex quinquefasciatus* and *Anopheles quadrimaculatus*. His study demonstrated that even at concentrations as low as 4ppm, the product could kill nearly half of all larvae within three days. After this study, Dr. Zhang tested to see how long the copper sulfate persisted in water. To do this, he introduced larvae from 2 different species, *Ae. aegypti* and *Cx. quinquefasciatus*, into buckets and pools of treated water every 7 days for 3 weeks. This study found copper sulfate has long-lasting effects in water and can continue to kill mosquito larvae past 3 weeks.





## DETERMINATION OF INFLUENCING FACTOR FOR ULV SPRAY AND ITS IMPACTS ON NON-TARGETS:

Dr. M. Farooq evaluated the efficacy of ultra-low volume (ULV) space sprays. Realizing inconsistencies in efficacy of truck mounted ULV space sprays, two studies were conducted to investigate the effect of nozzle orientation and travel speed on effectiveness of spray in the open field. The results indicated horizontal nozzle orientation to be the best and the efficacy increased with an increase in travel speed. During these studies, efficacy was checked at 5 ft above ground and indicated that spray was most effective when the nozzle orientation remained about 5 ft above ground. A study was conducted to evaluate spray dispersion at different heights and distances from the spray released at different orientations of the nozzle. Movement of Aqualuer 20-20 sprayed with a truck mounted ULV sprayer at the maximum label rate was tracked by bioassays and spray deposition at heights of 5, 10, 20 and 30 ft and distances of 0, 100, 200, and 300 ft from the spray line. This study was conducted in collaboration with US Navy Entomology Center of Excellence, Jacksonville, FL.



AMCD, UF, and the City of Gainesville Mosquito Control evaluated the effects of routine applications of barrier treatments and truck-based ultra-low volume (ULV) treatments on honey bees under conditions that reflect actual field exposure in Gainesville, Florida. Caged bees (*Apis mellifera*) and mosquitoes (*Aedes albopictus*) were directly exposed to bifenthrin (TalstarP®, AI 7.9%, FMC) as a barrier treatment at the maximum rate (1fl.oz./gallon). Laboratory leaf bioassay results show that 24-h mortality of bees and mosquitoes decreased as the leaf sample distance increased (0, 10 and 20 ft.) and also decreased over time (0, 1, 2 and 3 wk.). When bee hives were placed in a residential backyard (150 ft. from spray line) and exposed to permethrin (Aqua-Kontrol 30-30) via ULV application at the medium application rate of 0.00175 lbs /acre, no significant differences were observed in the number of dead bees per hive, mortality of caged bees and mosquitoes, and total weight of bees per hive between the treatment and control. Results suggest that different mosquito application techniques may have different effects on honey bee survivorship.





## COLLABORATIVE, ONGOING, AND COMPLETED APPLIED RESEARCH PROJECTS FOR 2019

Semi-field evaluation of spatial mosquito repellent devices

Laboratory evaluation of ThermCell mosquito repellent against ticks

Semi-field evaluation of spatial repellent torches against mosquitoes

Irradiated female *Aedes aegypti* mosquitoes and Deet repellency

Field evaluation of In2Care trap and AGO trap comparisons

Evaluation of different infusion for gravid traps to collect gravid mosquitoes

Semi-field and field evaluation of three modified gravid traps against *Aedes* mosquitoes  
DynaTrap evaluation

Tolfenpyrad efficacy and resistance bioassay in the laboratory

Field evaluation of 6 adulticides on mosquitoes and honey bees

Laboratory bioassay of several new formulations of plant resource compounds against mosquito larvae

Semi-field and field evaluation of Rescue's sticky traps against eye gnats and *Aedes aegypti* mosquitoes

Laboratory and semi-field evaluation of a new larviciding against 3 species of mosquito larvae

Semi-field evaluation of ULV droplets in relation to cage heights

Semi-field evaluation of new formulation of malathion against adult mosquitoes

Keystone virus vector investigation in St. Johns County

Northeastern Florida EEE/WNV vector survey

Wolbachia-infected mosquito release in Southern St. Augustine

SIT male release evaluation in down town St. Augustine

Laboratory testing for the ATSB against resistant *Aedes aegypti*

SIT mosquitoes and ULV spray with permethrin products tested in the semi-field

SIT mosquitoes and ATSB testing against *Aedes aegypti* in the laboratory

Laboratory testing of the ATSB devices against 3 species of adult mosquitoes

ATSB device against *Aedes albopictus* tested in the laboratory and field





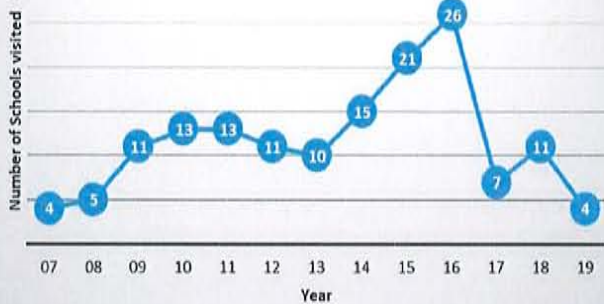
**AMCD EDUCATION EVENTS AND TRAINING:**

Dr. Efstathion hosted a mosquito identification training class at AMCD for all AMCD employees. AMCD employees also attended many training events including AMCA, AMCD's 16th Annual Arbovirus and Mosquito Control Workshop & receiving 18 CEU credits, Drone, FES, Larval ID Class, Subcommittee on Managed Marshes, FMCA, Dodd Short Courses, Pryor Management Classes, SOVE, FDACS ID Training at AMCD, First Aid & CPR, Hazardous Spill Response, Fly-In classes, USDA larval rearing, and the 5th Annual Biologist/Entomologist workshop. AMCD collaborated with UF and trained a Ph.D. student and AMCD trained 5 visiting scientists and 8 intern students. AMCD, as a mentor, provided training for the mentee, Gainesville Mosquito Control staff through the National Association of City and County Health Officer's CDC grant fund.



**AMCD Mosquito ID Class**

**Number of schools visited**



**ST. JOHNS COUNTY SCHOOL PROGRAMS:**

In 2019 AMCD taught at 4 different schools in St. Johns County, reaching 430 students. Participating Elementary schools included: Arc Community Campus, Otis Mason Elementary, Durbin Creek Elementary, and PVPV/Rawlings Elementary. AMCD also attended 5 summer camps giving presentation to around 400 children. The District was once again asked to judge the St. Johns County STEM Fair.

**COMMUNITY EVENTS/PUBLIC OUTREACH:**

AMCD was involved in 8 public events including FOCUS Hastings, National Night Out, Nocatee Night Out, Flagler Career Expo, Pink Up the Pace Expa, Vilano Beach Clean-up, Ancient City Kids Day, and the St. Augustine Christmas Parade. AMCD held an Open House on Thursday, June 27, 2019, from 4-7 PM, during the National Mosquito Control Awareness week and had 121 people who attended and also held an Open House for FMCA meeting participants on November 17, 2019. AMCD met with the St. Johns County School Board Curriculum directors to discuss curriculum needs and what AMCD could provide.

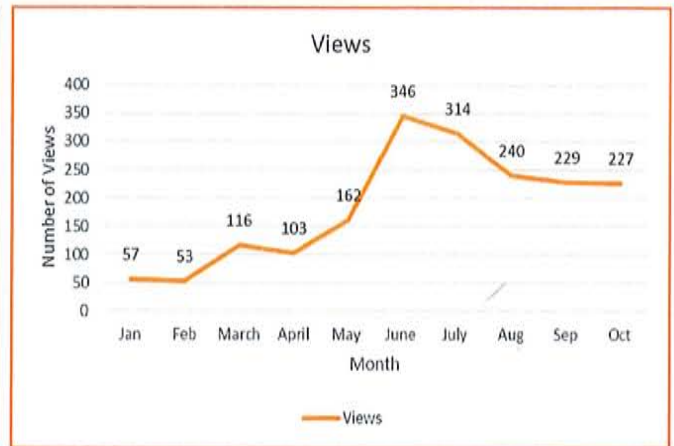
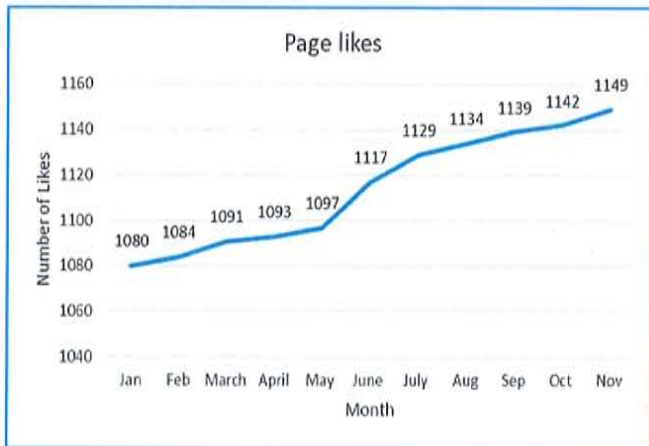


**Flagler  
Career  
Expo**

**St. Augustine  
Christmas  
Parade Float  
(12-7-19),  
engineered  
& coordinated  
by: Education  
Specialist,  
Edward Zeszutko**



**PUBLIC RELATIONS:** The District increased its presence on social media in 2019. The Anastasia Mosquito Control District's Facebook page now has over 1,000 followers and over 1,000 page likes. Post reach and reactions increased as well. In an effort to increase awareness of spray activity among St. Johns County residents, spray maps were created and published on the District's website. The District's social media following increased steadily throughout 2019. The District was featured in one TV news story and one radio appearance.



**2019 CUSTOMER SATISFACTION SURVEY RESULTS:** AMCD continues to gauge customer satisfaction using both physical and internet surveys. For 2019 there were 46 physical surveys returned and 4 internet surveys returned, for a total of 50 returned surveys.



**Question**

1. The goal of AMCD is to preserve and protect the community from mosquitoes and mosquito-borne diseases by reducing nuisance and disease spreading mosquito populations.
2. AMCD staff is informative and professional.
3. AMCD responds to my service requests within the standard 1-2 business days.
4. I am aware of and actively participate in DRAIN and COVER methods.



- Jan 8-10: Mr. Paul Leone & Mr. Richard Weaver attended FMCA Fly In class in Lee County Mosquito Control District, Ft. Myers, FL
- Feb 4-7: Commissioner Jeanne Moeller organized the Dodd Short Course Commissioner Caucus and 12 employees attended various classes.
- Feb 7: Dr. Rui-De Xue attended the UF/EPI Research Day.
- Feb 12: AMCD hosted the FCCMC meeting.
- Feb 25-28: Commissioners' Gary Howell, Jeanne Moeller, and, Dr. Rui-De Xue and 4 employees (as volunteers) attended the AMCA annual meeting, Orlando, FL. Dr. Xue co-organized a symposium on the *Aedes* mosquito management and gave presentations. Dr. Xue received the Presidential Citation award, Mr. Christopher Bibbs received the student competition award.
- Mar 6: Mr. Steven Smoleroff & Mr. Morgan Duett attended the Salt Marsh Manager Committee meeting, Indian River Mosquito Control District, Vero Beach, FL.
- Mar 19: Dr. Rui-De Xue attended the FES Teleconference meeting.
- Mar 25-26: Commissioners' Jeanne Moeller & Trish Becker attended the FMCA Tallahassee Legislation meeting.
- Mar 26-28: AMCD hosted and organized the 16<sup>th</sup> Annual Workshop.
- Apr 4: AMCD held an Applied Research and Collaboration meeting.
- Apr 16-17: Dr. Rui-De Xue was invited to give a presentation on creating a mosquito control program at NACCHO, St. Pittsburgh, FL.
- Apr 17: Dr. Caroline Efstathion & Mrs. Dena Autry attended the FMCA Entomologist /Biologist meeting at Lee County Mosquito Control District, Ft. Myers, FL.
- Apr 23-24: AMCD hosted the NACCHO Representatives who visited the District.
- Apr 25: AMCD hosted the Kiwanis Club members who visited the District.
- May 7: Dr. Rui-De Xue teleconferenced in for the FCCMC meeting.
- May 14-15: Commissioner Jeanne Moeller and Dr. Rui-De Xue attended the AMCA DC Legislation meeting.
- May 27-30: Dr. Rui-De Xue as Conference President co-organized the 6<sup>th</sup> International Forum for surveillance and control of mosquitoes and vector-borne diseases in Xiamen, China.
- May 31: Dr. Rui-De Xue co-organized the ASVEMC & Taiwan Pest Control Assoc. Vector Control Workshop, Taipei, Taiwan.
- Jun 10-13: Dr. Rui-De Xue attended the Vector Control Response and WHO meeting, Netherlands.
- Jun 13: AMCD hosted the Florida Mosquito Control Association (FMCA) Board meeting.
- Jun 19: AMCD & DOH held an annual Collaboration meeting.
- Jun 27: AMCD held an Open House.

PROFESSIONAL MEETINGS, SYMPOSIUMS,  
AND WORKSHOPS



FES Meeting, Jupiter, FL  
July 21-24, 2019  
Asst. Supervisor, Mrs. Dena Autry and Molecular  
Biologist, Dr. Caroline Efstathion



- Jul 21: Dr. Rui-De Xue attended the Florida Entomology Society (FES) Board meeting, Jupiter, FL
- Jul 23: Dr. Caroline Efstathion and Mrs. Dena Autry attended the FES meeting and gave presentations at the symposium and presented a poster, Jupiter, FL.
- Aug 16: AMCD held an intern students and visiting scientists' presentation.
- Aug 23: AMCD held a visiting scientist presentation.
- Aug 27-29: Dr. Rui-De Xue was invited and partially funded for giving a presentation on mosquito species specific control to benefit non-targets, ASC's Symposium, San Diego, CA.
- Sep 17: Dr. Rui-De Xue attended the FCCMC meeting through teleconferencing in.
- Sep 23-25: Commissioners' Jeanne Moeller, Gary Howell & Dr. Rui-De Xue attended the SOVE annual meeting, San Juan, Puerto Rico
- Oct 7-11: Mrs. Dena Autry & Mr. Steven Smoleroff attended the UF/FMEL ID class, Vero Beach, FL
- Oct 25: AMCD held an intern students and visiting scientists' presentation for all employees.
- Oct 30-31: Commissioner Don Girvan and Dr. Rui-De Xue visited MosquitoMate, Lexington, KY.
- Nov 4-7: Dr. Rui-De Xue was invited and funded for giving a seminar on dengue vector control in the city of Jeddah, Saudi Arabia.
- Nov 17-20: AMCD held an Open House for FMCA participants and hosted the 91<sup>st</sup> FMCA Annual meeting and 25 people from AMCD attended the meeting and gave 13 presentations. Commissioner Jeanne Moeller organized the Commissioner Session at the AMCD facility.
- Dec 5: AMCD hosted the DACS/DPI visit and quarantine office for inspection.
- Dec 9-12: Dr. Rui-De Xue was invited & funded for giving a presentation about repellent testing standardization at the European Collaboration in Science and Technology's Nanotechnology for repellents meeting in Malta.
- Dec 18: Mrs. Kay Gaines attended the St. Johns County's Leadership Council meeting.



- Bibbs, C.S., J. R. Bloomquist, D. A. Hahn, R. D. Xue, and P. E. Kaufman. 2019. Investigations for reducing fitness in peridomestic mosquitoes using spatial repellents. 260<sup>th</sup> American Chemical Society Meeting: Division of Agrochemicals; Development of Novel Vector Control Technologies Symposium, Aug. 28, 2019.
- Smoleroff, S. T., C. S. Bibbs, and R. D. Xue. 2019. Evaluation of pyrethroid and botanical barrier insecticides against *Aedes albopictus* in the laboratory and field. 16<sup>th</sup> Arbovirus Surveillance and Mosquito Control Workshop; Attractant, Trap, and Repellent Symposium – Mar 27<sup>th</sup>, 2019
- Xue, R. D., S. Shi, J. Zhu, E. Khater, C. S. Bibbs, and D. Dixon. 2019. Evaluation of a novel rotator trap, modification to AGO traps with suction fans, and modifications to 00ZZZero traps. 16<sup>th</sup> Arbovirus Surveillance and Mosquito Control Workshop; Larval and Adult Control Symposium – Mar 27<sup>th</sup>, 2019.
- Acevedo, N., C. S. Bibbs, and R. D. Xue. 2019. Semi-field evaluation of three light traps against *Aedes aegypti*. 16<sup>th</sup> Arbovirus Surveillance and Mosquito Control Workshop; Attractant, Trap, and Repellent Symposium – Mar 27<sup>th</sup>, 2019
- Bibbs, C. S., P. Brown, and R. D. Xue. 2019. Impacts of bromeliad type and water level on *Aedes aegypti* egg deposition. 16<sup>th</sup> Arbovirus Surveillance and Mosquito Control Workshop; Biology & Ecology Symposium – Mar 27<sup>th</sup>, 2019.
- Dena Autry. 2019. Large-scale deployment of CDC/AGO traps for control of *Aedes* mosquitoes in 2018 ... , 16<sup>th</sup> Arbovirus Surveillance and Mosquito Control Workshop, AMCD, St. Augustine, FL, Mar. 27<sup>th</sup>, 2019.
- Richard Weaver. 2019. A new software for mobile phone application to improve customer service. 16<sup>th</sup> Arbovirus Surveillance and Mosquito Control Workshop, St. Augustine, FL, Mar. 28, 2019.
- Clark M. 2019. Overview of AMCD intern training program. 16<sup>th</sup> Arbovirus Surveillance and Mosquito Control Workshop, St. Augustine, March 28, 2019.
- Bibbs, C. S., J. R. Bloomquist, D. A. Hahn, R. D. Xue, and P. E. Kaufman. 2019. Characterization of volatile pyrethroids for mosquito management. University of Florida, Entomology and Nematology Dissertation Defense Seminar – March 22<sup>nd</sup>, 2019.
- Bibbs, C. S., P E. Kaufman, and R. D. Xue. 2019. From spatial repellent to harborage treatment adulticide: pilot tests of metofluthrin for point-source mosquito abatement. 85<sup>th</sup> American Mosquito Control Association Meeting; Student Paper Competition – February 27<sup>th</sup>, 2019.
- Bibbs, C. S. 2019. Highlights in Vector Control. 85<sup>th</sup> American Mosquito Control Association Meeting; 6<sup>th</sup> Arthropod Vector Highlights Symposium – February 26<sup>th</sup>, 2019.
- Bibbs, C. S., J. Hogsette, and D. L. Kline. 2019. Spatial repellents made easy: this potpourri smells funny. 36<sup>th</sup> Annual Florida Mosquito Control Association DODD Mosquito Control Workshops; A Potpourri of Potential Issues Facing Mosquito Control, Course Q – February 7<sup>th</sup>, 2019
- Bibbs, C. S., R. Perreira, and R. W. Baldwin. 2019. Mosquito taxonomy, biology, ecology, and vector relevance for mosquito control operations. 36<sup>th</sup> Annual Florida Mosquito Control Association DODD Mosquito Control Workshops; Commissioner Caucus, Course C – February 5<sup>th</sup>, 2019
- Xue, R.D. 2019. The past and future about the IFSCMVD-Presidential address. The 6<sup>th</sup> International Forum for Surveillance and Control of Mosquitoes and Vector-borne Diseases, Xiamen, China, May 26-30, 2019.
- Xue, R.D. 2019. Evaluation of two modified gravid traps and a novel rotated trap against adult mosquitoes. Environmental agents and vector management international workshop. May 31, 2019.
- Xue, R.D. 2019. Resurgence of *Aedes aegypti* and its control efforts at the Anastasia Mosquito Control District, Northeastern Florida. AMCA's 85<sup>th</sup> annual meeting, Orlando, FL, Feb 25-March 1, 2019.



- Dixon D, Mullin L, Autry D, Gaines MK, Banfield M, Xue RD. 2019. The mass deployment of autocidal gravid traps for the control of *Aedes aegypti* and *Ae. albopictus* in St. Johns County. AMCA's 85<sup>th</sup> Annual meeting, Orlando, FL, Feb 25-March 1, 2019.
- Autry D. 2019. AGO traps and In2Care trap comparison. 102<sup>nd</sup> Florida Entomology Society annual meeting, Jupiter, July 23, 2019.
- Efstathion C, 2019. Blood feeding behavior, 102<sup>nd</sup> Florida Entomology Society annual meeting, Jupiter, July 23, 2019.
- Xue, R.D. 2019. Species specific control techniques for control of *Aedes aegypti* and reducing impact on non-target organisms. American Chemical Society annual meeting. San Diego, CA, August 27, 2019.
- Xue, R.D. and K. Linthicum. 2019. Host avidity, blood feeding, and Deet repellency of irradiated *Aedes aegypti*. 49<sup>th</sup> Annual SOVE conference. San Juan, Puerto Rico, September 22-26, 2019.
- Xue, R.D. 2019. Seminar: Dengue vector control technology and AMCD's program. Department of Environmental Protection and Dept of Health, City of Jeddah, Saudi Arabia, Nov. 7, 2019.
- Weaver R. 2019. Overview of Anastasia Mosquito Control District's New Applied Research Facility. 91<sup>st</sup> annual meeting of the Florida Mosquito Control District, St. Augustine, FL, Nov 18-20, 2019.
- Miah, M. & K. Blore. 2019. Laboratory and field evaluation of a new larvicide against 3 species of mosquitoes. 91<sup>st</sup> Annual meeting of the FMCA. St. Augustine, FL, Nov. 18-20.
- Pearson, M. 2019. Laboratory evaluation of boric acid sugar baits against resistance strain of *Aedes aegypti*. 91<sup>st</sup> Annual Meeting of the FMCA, St. Augustine, FL, Nov. 18-20, 2019.
- Zeszutko, E. 2019. Laboratory and field evaluation of commercial ATSB product against *Aedes albopictus*. 91<sup>st</sup> Annual Meeting of the FMCA, St. Augustine, FL, Nov. 18-20, 2019.
- Aryaprema, V.S. and R.D. Xue. 2019. Semi-field evaluation of ULV spray of Aqualuer 20-20 against irradiated *Aedes aegypti*. 91<sup>st</sup> Annual Meeting of the FMCA, St. Augustine, FL, Nov. 18-20, 2019.
- Qualls, W.A. 2019. Enhancing resources and capacity of entities that do mosquito control in Texas. 91<sup>st</sup> Annual Meeting of the FMCA, St. Augustine, FL, Nov. 18-20, 2019.
- Efstathion, C. 2019. Gravid infusion water comparison for collection of *Aedes* mosquitoes. 91<sup>st</sup> Annual Meeting of the FMCA, St. Augustine, FL, Nov. 18-20, 2019.
- Cunningham, C.A. 2019. Sub-lethal effects of irradiation on the blood feeding behavior of *Aedes aegypti* in St. Augustine, FL. 91<sup>st</sup> Annual Meeting of the FMCA, St. Augustine, FL, Nov. 18-20, 2019.
- Bangonan L. 2019. Trap modification to increase the capture rate of *Aedes aegypti*. 91<sup>st</sup> Annual Meeting of the FMCA, St. Augustine, FL, Nov. 18-20, 2019.
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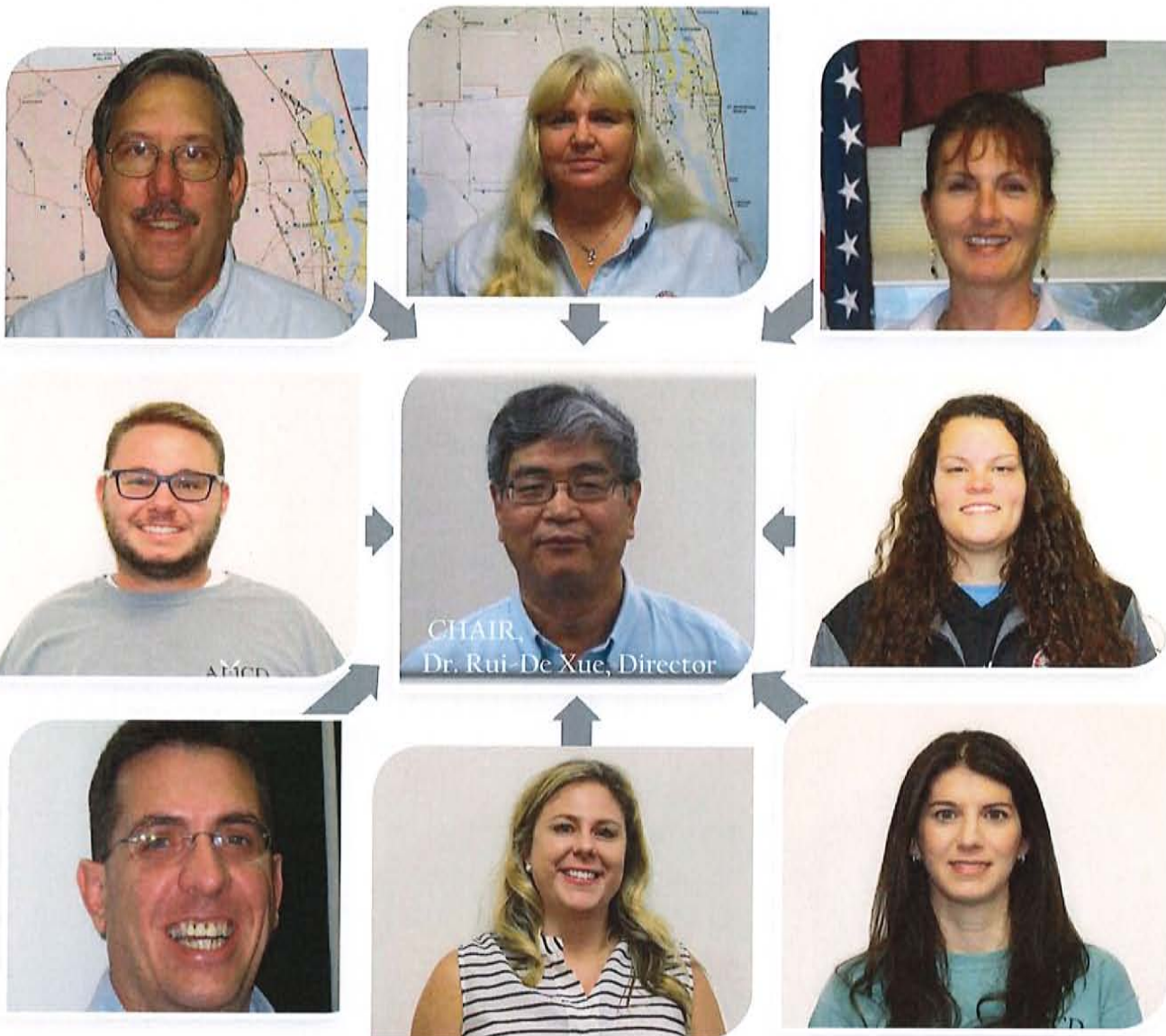


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